

PATENT

Atty. Dkt. No. APPM/005538/PPC/CMP/CKIM

REMARKS

This is intended as a full and complete response to the Final Office Action dated July 25, 2005, having a shortened statutory period for response set to expire on October 25, 2005. Please reconsider the claims pending in the application for reasons discussed below.

Applicants note that the Examiner has not yet indicated whether the references submitted in the Information Disclosure Statement filed on April 10, 2001, have been considered. A copy of the Information Disclosure Statement as filed and the return receipt postcard are attached. Applicants respectfully request consideration of the references submitted in the Information Disclosure Statement filed on April 10, 2001.

Claims 27-76 remain pending in the application. Claims 27-76 stand rejected. Reconsideration of the rejection of claims 56-58 is requested for reasons presented below.

Applicants propose canceling claims 27-55 and 59-76. Applicants propose rewriting claim 56 in independent form and correcting the phrase "applying a barrier-layer-selective composition to a polishing pad" to "applying a barrier-layer-selective composition to the polishing pad." Support for the amendment of claim 56 is provided by page 16, lines 12-14 of the specification. Applicants submit that the changes made herein reduce the issues for appeal and do not introduce new matter or raise new issues.

Claims 67 stands rejected under 35 U.S.C. § 102(e) as being anticipated by *Kaisaki, et al.* (U.S. Patent No. 6,194,317). Applicants submit that the rejection of claim 67 is moot as Applicants propose canceling claim 67. Applicants respectfully request withdrawal of the rejection of claim 67.

Claims 27-32, 35-66, 68, 69, and 70-76 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kaisaki, et al.* (U.S. Patent No. 6,194,317) in view of *Merchant, et al.* (U.S. Patent No. 6,436,830). Applicants respectfully traverse the rejection of claims 56-58.

The Examiner states that *Kaisaki, et al.* provides a solution that includes a reducing agent and that is a barrier-layer-selective composition since Figures 1 and 2 of

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Kaisaki, et al. show that more of metal layer 14 is removed than barrier layer 13 during polishing using the solution. The Examiner asserts that in view of *Merchant, et al.*, it would have been obvious to use ions of a transition metal (copper) in *Kaisaki, et al.*'s working solution. Regarding claim 56, the Examiner further states that *Kaisaki, et al.* discloses that the working solution contains an oxidizer and a chelating agent (column 13, lines 38-59).

Applicants note that claim 56 recites a method that uses a barrier-layer-selective composition that comprises a reducing agent and ions from a transition metal and a conductive-material-layer selective composition that comprises a chelating agent and an oxidizer, rather than a method that comprises a working solution or composition that includes a reducing agent, ions from a transition metal, a chelating agent, and an oxidizer. *Kaisaki, et al.* does not teach or suggest a method of planarizing a substrate using two different compositions, *i.e.*, a conductive-material-layer selective composition and a barrier-layer-selective composition, as described in claim 56. Furthermore, Applicants respectfully submit that *Kaisaki, et al.* provides one working solution for polishing a conductive material in an interconnect but does not teach or suggest polishing a substrate with a barrier-layer-selective composition, as *Kaisaki, et al.* does not describe or suggest a planarization process in which a barrier layer is preferentially polished relative to other materials in the planarization process. Applicants respectfully submit that the Examiner's assertion that the removal of more of the metal layer 14 than the barrier layer 13 of *Kaisaki, et al.* is performed by a working solution that is barrier-layer-selective is improper as the Examiner is erroneously ignoring Applicants' definition of "selective" compositions that is provided at page 10, lines 2-4 of the instant application ("Selective to a "material" is broadly defined herein as removing the material at a higher rate than other materials or adjacent materials in a CMP process"). According to Applicants' definition of "selective," the removal of more of a metal layer than a barrier layer is performed by a metal-layer-selective composition rather than a barrier-layer-selective composition.

Applicants further submit that *Merchant, et al.* does not teach or suggest a method of planarizing a substrate using a conductive-material-layer selective composition and a barrier-layer-selective composition. Thus, *Kaisaki, et al.* and

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Merchant, et al., individually or in combination, do not teach, show, or suggest a method for planarizing a substrate having a conductive material layer and a barrier layer deposited thereon, comprising applying a conductive-material-layer-selective composition to a polishing pad, wherein the conductive-material-layer-selective composition comprises at least one chelating agent, at least one oxidizer, at least one corrosion inhibitor, and water, polishing the substrate in presence of the conductive-material-layer-selective composition, applying a barrier-layer-selective composition to the polishing pad, the barrier-layer-selective composition comprising at least one reducing agent, ions from at least one transitional metal, and water, and polishing the substrate in presence of the barrier-layer-selective composition, as recited in proposed claim 56. Applicants respectfully request withdrawal of the rejection of claim 56 and of claims 57-58, which depend thereon.

Regarding claims 27-32, 35-55, 59-66, 68, 69, and 70-76, Applicants submit that the rejection of claims 27-32, 35-55, 59-66, 68, 69, and 70-76 is moot as Applicants propose canceling claims 27-32, 35-55, 59-66, 68, 69, and 70-76. Applicants respectfully request withdrawal of the rejection of claims 27-32, 35-55, 59-66, 68, 69, and 70-76.

Claim 33 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kaisaki, et al.* (U.S. Patent No. 6,194,317) in view of *Merchant, et al.* (U.S. Patent No. 6,436,830) and further in view of *Small, et al.* (U.S. Patent No. 6,117,783). Applicants submit that the rejection of claim 33 is moot as Applicants propose canceling claim 33. Applicants respectfully request withdrawal of the rejection of claim 33.

Claim 34 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kaisaki, et al.* (U.S. Patent No. 6,194,317, in view of *Merchant, et al.* (U.S. Patent No. 6,436,830) and further in view of *Kondo, et al.* (U.S. Patent No. 6,117,775). Applicants submit that the rejection of claim 34 is moot as Applicants propose canceling claim 34. Applicants respectfully request withdrawal of the rejection of claim 34.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicants' disclosure than the

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primary references cited in the Final Office Action. Therefore, Applicants believe that a detailed discussion of the secondary references is not necessary for a full and complete response to this Final Office Action.

Having addressed all issues set out in the Final Office Action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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